



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
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Refer to:  
OSB2001-0280-FEC

May 29, 2002

Jeff Blackwood  
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Umatilla National Forest  
2517 S.W. Hailey Avenue  
Pendleton, OR 97801

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act  
Essential Fish Habitat Consultation for Desolation Creek Watershed Demo Projects,  
Grant County, Oregon

Dear Mr. Blackwood:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) that addresses the proposed Desolation Creek Watershed Demo Projects, Grant County, Oregon. NMFS concludes in this Opinion that two projects, the Dispersed Campsite Improvement or Relocation Project and the Upper Desolation Road Obliteration Project, are not likely to adversely affect Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*). NMFS concludes that a third project, the Road 45 Bottomless Arches, is not likely to jeopardize MCR steelhead, or destroy or adversely modify their critical habitat. This Opinion includes reasonable and prudent measures with terms and conditions that are necessary and appropriate to minimize the potential for incidental take associated with the Road 45 Bottomless Arches Project.

In addition, this document also serves as consultation on essential fish habitat (EFH) for chinook salmon under Public Law 104-267, the Sustainable Fisheries Act of 1996, as it amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). An EFH analysis is required for chinook salmon.

The attached Opinion contains an analysis of the effects of the proposed action on designated critical habitat. Shortly before the issuance of this Opinion, however, a Federal court vacated the rule designating critical habitat for the evolutionarily significant unit (ESU) considered in this Opinion. The analysis and conclusions regarding critical habitat remain informative for our application of the jeopardy standard even though they no longer have independent legal significance. Also, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary at that time. For these reasons and the need to timely issue this Opinion, our critical habitat analysis has not been removed from this Opinion.



Questions regarding this Opinion should be directed to Doug Baus of the Oregon Habitat Branch's La Grande Field Office at 541.975.1835 ext. 224.

Sincerely,

*for Michael R Crouse*

D. Robert Lohn  
Regional Administrator

cc: Katherine J. Ramsey - FS  
Tim Bailey - ODFW  
Greg Smith - USFW

Endangered Species Act - Section 7 Consultation  
&  
Magnuson-Stevens Act  
Essential Fish Habitat Consultation

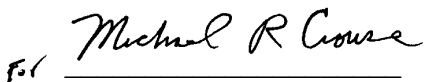
BIOLOGICAL OPINION

Desolation Creek Watershed Demo Projects  
Grant County, Oregon

Agency: USDA Forest Service

Consultation  
Conducted By: National Marine Fisheries Service,  
Northwest Region

Date Issued: May 29, 2002

Issued by:   
D. Robert Lohn  
Regional Administrator

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## **1. ENDANGERED SPECIES ACT**

### **1.1 Background**

On October 26, 2001, NMFS received a letter dated October 16, 2001, with an attached biological assessment (BA) from the Forest Service (FS) requesting consultation regarding the potential effects of the Desolation Creek Watershed Demo Projects, on MCR steelhead (*Oncorhynchus mykiss*) and its designated critical habitat. The Desolation Creek Watershed Demo Projects are located in; Desolation Creek, North Fork John Day River (NFJDR), and Granite Creek watersheds. These watersheds are located within the NFJDR sub-basin. The NFJDR sub-basin is part of the John Day River (JDR) basin, a major tributary of the Columbia River. The accompanying biological assessment (BA) described the projects and their potential effects on MCR steelhead and its designated critical habitat.

The MCR steelhead was listed under the Endangered Species Act (ESA) on March 25, 1999 (64 FR 14517). The proposed projects are within MCR steelhead critical habitat, which was designated February 16, 2000 (65 FR 7764). Protective regulations were issued for MCR steelhead under Section 4(d) of the ESA on July 10, 2000 (65 FR 42422). All streams and their adjacent riparian areas in the JDR basin downstream from longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for at least 100 years) are designated critical habitat for MCR steelhead. The proposed actions addressed in this biological opinion (Opinion) are within designated critical habitat for MCR steelhead in the NFJDR sub-basin.

The objective of this Opinion is to determine whether the Desolation Creek Watershed Projects are likely to jeopardize the continued existence of the MCR steelhead or destroy or adversely modify its critical habitat.

### **1.2 Proposed Actions**

Three projects were included in the Desolation Creek Watershed Demo Projects BA. The Umatilla National Forest (UNF) determined the Dispersed Campsite Improvement or Relocation Project, and the Upper Desolation Road Obliterations Project were, not likely to adversely affect (NLAA) MCR steelhead and its critical habitat (Table 1). The UNF determined that the Road 45 Bottomless Arches Project was likely to adversely affect (LAA) MCR steelhead and its critical habitat, therefore the effects of this activity will be analyzed in detail in this Opinion.

**Table 1. Summary of UNF Desolation Creek Watershed BA Project Determinations**

<b>Project Name</b>	<b>UNF Determination</b>	<b>Brief Project Description</b>
<b>1) Dispersed Campsite Improvement or Relocation</b>	<i>NLAA</i>	1) Place rock on bare access roads to eliminate the chronic input of sediment into streams, 2) place boulders to confine recreational activities to designated areas, and 3) remove hazard trees
<b>2) Upper Desolation Road Obliterations</b>	<i>NLAA</i>	1) Rip and scarify the roadways to break down compacted surfaces to facilitate infiltration and re-vegetation, 2) re-vegetate all disturbed areas with native, weed-free grass seed, and 3) monitor disturbed area for the next 5 years
<b>3) Road 45 Bottomless Arches</b>	<i>LAA</i>	1) Remove existing culverts at two project sites, 2) install two bottomless arch culverts at the project sites, and 3) bottomless arches will improve passage to access a total of 7 miles of habitat for MCR steelhead

### **1.2.1 Dispersed Campsite Improvement or Relocation**

The purpose of this project is to reduce or eliminate soil erosion, reduce damage to streambanks and stream-side vegetation, and to improve recreation settings for forest visitors through rehabilitation work of several dispersed campsites in the Upper Desolation Creek subwatershed. Activities proposed for various sites include: 1) Placing rock on access roads and parking areas to reduce or eliminate rutting and encourage use in designated areas, 2) elimination of some low-use dispersed campsites, 3) dismantling of pit toilets, 4) placement of boulders to block vehicle access to some sites located within riparian and sensitive areas, and 5) removal of small diameter lodgepole pines to improve access to some sites and felling of hazard trees.

### **1.2.2 Upper Desolation Road Obliteration**

The UNF is proposing to obliterate roads that are no longer needed for future management purposes in the Desolation Creek Watershed. Two work sites are located outside of Desolation Creek watershed. These sites are located in the NFJDR and Granite Creek watersheds. The following project design criteria will be applied to the road obliteration projects: 1) Rip and scarify the roadways to break down compacted surfaces to facilitate infiltration and re-vegetation, 2) re-contour portions of the road to the original hill slope to re-establish the normal water table within the area and insert water-bars where re-contouring is not utilized, 3) remove culverts at intermittent stream crossings to eliminate the potential for future mass wasting when culverts become plugged, 4) remove culverts located at stream-crossings when the stream is dry, during the Oregon Department of Fish and Wildlife (ODFW) in-water work window, 5) re-vegetate all disturbed areas with native, weed-free grass seed, and utilize straw bales for sediment control, and 6) monitor disturbed areas for the next 5 years.

### **1.2.3 Road 45 Bottomless Arches**

Currently, the North and South Forks of Desolation Creek pass under Forest Road 45 in culverts at two sites. The culverts were improperly installed and consequently an unnatural steepening of the stream gradient has occurred. The steepened stream gradient has formed a partial passage barrier for MCR steelhead, especially during high and low flows. The culverts on the North and South Forks of Desolation Creek on Forest Road 45 will be replaced with “bottomless arches” or open bottom culverts where the natural streambed remains undisturbed. Once the new arches are in place, fish passage under the Forest Road 45 can occur at all times of the year at both locations for all life stages of MCR steelhead. Two miles of habitat on the South Fork of Desolation Creek and five miles of habitat on the North Fork of Desolation Creek will be made more accessible to salmonids.

The first site is located on the North Fork of Desolation Creek. The bottomless arch installation will require minor excavation along either side of the creek to construct forms for the concrete footers. Approximately 430 cubic yards of existing fill material will be removed and temporarily stockpiled for later use in backfilling around the new bottomless arches. There will be no instream modifications at either end of the arch. The North Fork Desolation Creek bottomless arch will be 53.5 feet long and 16.8 feet wide. Normal bankfull width for this reach of the North Fork of Desolation Creek ranges between 15 and 18 feet wide, based on recent upstream and downstream measurements.

The second site is located on the South Fork of Desolation Creek. At this site, one bottomless arch will replace three, 6-foot-diameter, round culverts that are currently positioned side-by-side. The crossing is located approximately 1 1/4 mile upstream of the confluence with the North Fork of Desolation Creek. The stream channel grade is one to two percent at the project site. The stream channel bankfull width immediately upstream of the crossing is estimated at between 75 and 100 feet due to excessive deposition of gravel and cobbles at the head of the culvert. The three culverts were installed at a three to five percent gradient. Removing the culverts will involve approximately 1,100 cubic yards of material moved. A low profile bottomless arch (44.5 feet long, 23.8 feet wide) will be used at this crossing. Normal bankfull width for this reach ranges between 9 and 12 feet wide based on recent upstream and downstream measurements.

At both sites the bottomless arches will be placed on the concrete footers and anchored. The stockpiled fill will be used to backfill over the arches and crushed rock will be placed on the road surface. Large rock from the fill will be separated out and used as riprap rather than as replacement fill. If available fill is insufficient, more fill will be obtained from an existing borrow pit less than 1 1/4 mile from the South Fork of Desolation Creek, on Forest Road 45. The borrow pit is outside of any Riparian Habitat Conservation Areas (RHCAs). If available fill is in excess of backfilling needs, the excess fill will be hauled to the borrow pit for disposal.

The Forest Road 45 is a single lane, rocked road in the project area. At both crossings, excavating equipment will operate from within the road right-of-way and will not enter the

stream channel. Riprap will be placed on both the upstream and downstream fill-slopes to minimize erosion. An estimated 22 cubic yards of riprap will be placed at the North Fork crossing and an estimated 20 cubic yards of riprap will be placed at the South Fork crossing. Riprap will not extend up or down the stream banks past the ends of the culverts.

Silt fences will be used to capture sediment runoff during project implementation. Sediment-loaded, silt fences will be pulled from the channel following completion of backfill and riprap placement. To minimize the input of sediment into the channel from the silt fence removal the equipment operator removing the silt fence will take all applicable measures to ensure sediment remains in the silt fence. Loose sediment will be disposed of in the nearby rock pit, while sediment-loaded filter cloth and hay bales will be removed to an off-site disposal location. UNF personnel will evaluate the need for grass seeding for erosion control, and perform any seeding that may be necessary.

Prior to removal of the existing culverts, UNF fish biologists will deploy block nets upstream and downstream of the project areas to prevent fish from entering the areas during the construction period. Fish biologists will remove fish within the construction areas by snorkeling and carefully chasing fish out of the area before installing the second block net. The block nets will remain in place until the work is completed, to minimize potential for harm to fish in the vicinity of the work site.

The project will begin in 2002, and instream operations will only take place during the ODFW in-water work window from July 15 to August 15 (ODFW 2000). This is the period when no spawning is likely to occur, and fish have already emerged from redds in the streams. If both crossings cannot be replaced in one operating season, the second will be replaced between July 15 and August 15, 2003.

### **1.3 Biological Information and Critical Habitat**

Biological information concerning MCR steelhead can be found in Busby, *et al.* (1996). The current status of the MCR steelhead, based upon their risk of extinction, has not significantly improved since the species was listed. The MCR steelhead Evolutionary Significant Unit (ESU) was listed as threatened under the ESA by NMFS on March 25, 1999 (64 FR 14517).

Critical habitat for MCR steelhead (designated February 16, 2000; 65 FR 7764) encompasses the major Columbia River tributaries known to support this ESU, including the Deschutes, John Day, Klickitat, Umatilla, Walla Walla, and Yakima Rivers, as well as the Columbia River and estuary. Critical habitat consists of all waterways below long-standing (100 years or more), naturally impassable barriers. The adjacent riparian area is also considered critical habitat. This area is defined as the habitat that provides the following functions: Shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter. Protective regulations for MCR steelhead were issued under section 4 (d) of the ESA on July 10, 2000 (65 FR 42423).



Adult MCR steelhead enter the Columbia River beginning in the spring and migrate upriver through the summer, fall, and winter, seeking their tributary of origin. By early the next spring the adults have reached their natal streams and spawn in gravel redds/nests from March to early June. Deposited eggs usually hatch by the July of the same year. The juveniles will spend from one to four years rearing to smolt size at which time they will begin their migration to the ocean. MCR steelhead spawn and rear in Desolation Creek and some of its tributaries (Kelsay, Bruin, Battle, Sponge, Howard, North Fork Desolation, South Fork Desolation, Beeman, and Junkens Creeks).

Essential features of designated critical habitat for MCR steelhead adult spawning, juvenile rearing, and adult and juvenile migration are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions (50 CFR 226). The essential features that the proposed construction activities may affect are: Substrate, water quality, water velocity, riparian vegetation, and safe passage conditions.

#### **1.4 Evaluating Proposed Actions**

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (*i.e.*, the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: 1) Defining the biological requirements and current status of the listed species, and 2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: 1) Collective effects of the proposed or continuing action, 2) the environmental baseline, and 3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize MCR-listed steelhead, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates if the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for juvenile and adult migration, spawning, and rearing of the MCR steelhead under the existing environmental baseline.

#### **1.4.1 Biological Requirements**

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed MCR steelhead is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list MCR steelhead for ESA protection and also considers new data available that are relevant to the determination.

The relevant biological requirements are those necessary for MCR steelhead to survive and recover to naturally-reproducing population levels at which point protection under the ESA will become unnecessary. Adequate population levels must safeguard the genetic diversity of the ESA-listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. For this consultation, the biological requirements consist of improved habitat characteristics which function to support successful adult and juvenile migration, spawning and rearing.

In conducting analyses of habitat altering actions, NMFS defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat approach" to its analysis (NMFS 1999). MCR steelhead's survival in the wild depends on the proper functioning of certain ecosystem processes, including habitat formation and maintenance. The restoration of impaired habitat to a more properly functioning condition will likely lead to improved survival and recovery of MCR steelhead.

#### **1.4.2 Environmental Baseline**

The current range-wide status of the identified evolutionarily significant unit (ESU) is found in Busby *et al.* (1996). The identified action will occur within the range of MCR steelhead. The defined action area is the area that is directly and indirectly affected by the proposed action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, stream hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effect may occur throughout the watershed, where actions described in this Opinion lead to additional activities, or affect ecological functions, contribution to stream degradation. As such, the action area for the proposed activities include the immediate portions of the watersheds containing the projects and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term, by the proposed project. The action areas for this consultation are 150 feet upstream and ½ mile downstream from the project sites on the North and South Forks of Desolation Creek.

The current population status and trends for MCR steelhead are described in Busby *et al.* (1996), and in NMFS (1997). Busby (1996), citing ODFW data, stated the total MCR steelhead run size for the John Day River basin has recently averaged about 5,000 fish. NMFS (1997), citing Chilcote (1997), states that recent MCR steelhead redd counts conducted in established index areas throughout the John Day River basin suggest universal decline in redd abundance ranging from -0.9 to -5.6% over the past several years.

Environmental baseline conditions within the action area were evaluated for the subject actions at the project level and watershed scales. The results of this evaluation, based on the “matrix of pathways and indicators” (MPI) described in *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), follow. This method assesses the current condition of instream, riparian, and watershed factors that collectively provide functioning aquatic habitat essential for the survival and recovery of the species.

As indicated in the BA, the MPI identified the following habitat indicators for the MCR steelhead as either functioning “at risk” or “not properly functioning” within the action area: 1) Temperature, 2) sediment, 3) substrate, 4) pool frequency, 5) off-channel habitat, 6) refugia, 7) streambank condition, 8) peak/base flows, 9) drainage network increase, and 10) road density and location.

Based on the best available information of the current status of MCR steelhead range-wide, the population status, trends, genetics, and the poor environmental baseline conditions within the action area (as described in the BA), NMFS concludes that the biological requirements of the identified ESU area are not currently being met within the action area. Numbers of MCR steelhead are substantially below historic numbers and long term trends are decreasing. Recent droughts and change in ocean productivity have probably reduced run sizes. The river basin displays degraded habitat conditions resulting from agricultural practices, water diversions, road building, mining, forest management activities, and flooding.

## **1.5 Analysis of Effects**

### **1.5.1 Effects of Proposed Actions**

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document, *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The effects of proposed actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the action area. For the proposed actions, all conditions for the Desolation Creek, NFJD, and Granite Creek watersheds will be maintained.

NMFS concurs with the UNF’s NLAA determination for MCR steelhead and its designated critical habitat for the Dispersed Campsite Improvement or Relocation Project. NMFS’

concurrence with the Dispersed Campsite Improvement or Relocation Project determination is based on the following: 1) Bare access roads are a chronic contributor of feeding sediment into streams and the resurfacing of access roads will alleviate the problem of chronic sediment inputs; 2) placing boulders to define camping sites will improve riparian vegetation by focusing camping activities and recreational use within designated areas; 3) the removal of hazard trees on access roads are outside of RHCAs and are not contributing to streamside shade; and 4) the project will be implemented as described in the BA. Based on these findings NMFS believes there is less than a negligible likelihood of incidental take of MCR steelhead or adverse effects to designated critical habitat.

NMFS concurs with the UNF's NLAA determination for MCR steelhead and its designated critical habitat for the Upper Desolation Road Obliteration Project. NMFS' concurrence with the Upper Desolation Road Obliteration Project determination is based on the following: 1) All disturbed areas will be re-vegetated with native, weed-free grass seed, and straw bales will be utilized for sediment control; 2) disturbed areas will be monitored for the next five years; 3) culverts removed from intermittent streams will be done when the streams are dry (ODFW in-water work window); 4) juvenile MCR steelhead rearing does not occur at the culvert removal sites (Pers. comm., Kathy Ramsey, UNF, March 19, 2002); and 5) the project will be implemented as described in the BA.

Impacts of the proposed actions to stream habitat and fish populations can be separated into direct and indirect effects. Direct effects are those which contribute to the immediate loss or harm to individual fish or embryos (*e.g.*, harassing a fish, trampling a redd that results in the actual destruction of embryos, or dislodging the embryos from the protective nest and ultimately destroying eggs). Indirect effects are those impacts which occur at a later time, causing a change to specific habitat features (*e.g.*, undercut banks, sedimentation of spawning beds), localized change in habitat quality (*e.g.*, sedimentation, access to habitat, loss of riparian vegetation, changes in channel stability and structure), and ultimately, cause loss or reduction of entire populations of fish, or widespread change in habitat quantity and/or quality.

The replacement of culverts on Forest Road 45 with open-bottom arches on both the North and South Forks of Desolation Creek is LAA MCR steelhead, and its designated critical habitat. The expected effects of the projects are: 1) Sediment from the construction activities will increase in the short term, and will harass juvenile MCR steelhead rearing in the area; 2) block nets used to isolate the work site will not allow for fish passage during the ODFW in-water work window, and 3) habitat will be improved by creating seven miles of habitat that will be made more accessible to MCR steelhead. All other habitat conditions in the MPI for the North and South Fork of Desolation Creek will be maintained. The greatest potential for direct effects from the culvert removal and arch construction work will be delivery of additional sediment to the stream and the harassment of fish during construction.

Direct effects to MCR steelhead will occur as sediment is introduced into the North and South Forks of Desolation Creek. Protective measures to keep sediment out of the stream have been incorporated into the project design, however some amount of sediment is expected to enter the

streams. In the short term, a temporary increase in sediment and turbidity could reduce light penetration and inhibit primary production, abrade and clog fish gills, prevent foraging of sight-feeding juvenile steelhead, and cause fish to avoid disturbed areas of the stream. Studies have shown that sediment inputs resulting in substrate embeddedness of greater than one third can result in a decrease in benthic invertebrate abundance, and thus decrease the amount of food available for juvenile salmonids (Waters 1995). However, the amount of sediment generated from the bottomless arches installation should not occur in amounts sufficient to cause these adverse effects to MCR steelhead habitat. By conducting the proposed actions during the ODFW in-water work window, and utilizing protective measures such as silt fencing, the amount of sediment mobilized in the water column will be minimal.

Direct effects to juvenile MCR steelhead will occur in the form of harassment as they are moved from the action areas. UNF fish biologists will snorkel and chase out all juvenile MCR steelhead from the project site. Once these juvenile MCR steelhead are frightened from cover and swim to open water, they become more susceptible to predation from larger fish and avian predators. After fish are removed from the project site, block nets will be installed to keep fish out of the construction site. The use of block nets will temporarily interrupt juvenile MCR steelhead rearing, feeding, and sheltering.

The Road 45 Bottomless Arches Project will have beneficial effects on MCR steelhead habitat. Removal of the current culverts (a partial juvenile MCR steelhead passage barrier during high and low flows) and installing bottomless arches will allow for year-round passage to all life stages of MCR steelhead. The project will improve access to seven miles of habitat that will be utilized for migration, spawning, and rearing in the Desolation Creek Watershed.

### **1.5.2 Cumulative Effects**

Cumulative effects are defined in 50 CFR 402.02 as those of “future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.” The action area for this consultation includes the streambed and streambank of the North and South Forks of Desolation Creek, approximately 150 feet upstream and one half-mile downstream from the project sites. Other activities within the Desolation Creek watershed have the potential to adversely affect fish and habitat within the action area. Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities will be reviewed through separate section 7 consultation processes. NMFS is not aware of any significant change in non-federal activities that are reasonably certain to occur. NMFS assumes that future private and state actions will continue at similar intensities as in recent years.

## **1.6 Conclusion**

NMFS has determined the effects of the Road 45 Bottomless Arches Project, added to the environmental baseline and cumulative effects occurring in the action area, are not likely to jeopardize the continued existence of the MCR steelhead. Additionally, NMFS concludes that

the Road 45 Bottomless Arches Project would not cause adverse modification or destruction of designated critical habitat for MCR steelhead. NMFS believes that the Road 45 Bottomless Arches Project will cause some minor short-term increases in stream turbidity and sedimentation, but that the short-term effects will be offset by the long term benefits of providing seven miles of year-round habitat to all life stages of MCR steelhead.

## **1.7 Conservation Recommendations**

Section 7 (a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of proposed actions on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. NMFS has no additional conservation recommendations regarding the action addressed in this Opinion.

## **1.8 Reinitiation of Consultation**

Reinitiation of consultation is required if: 1) The action is modified in a way that causes an effect on the ESA-listed species that was not previously considered in the BA and this Opinion; 2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; 3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR. 402.16); or 4) the proposed actions are not consistent with conservation measures developed through the pending consultation on land and resource management plans for Federal land management units in the Middle and Upper Columbia River Basins. To reinitiate consultation, the UNF must contact the Habitat Conservation Division, Oregon Habitat Branch, of NMFS, and refer to OSB2001-0280-FEC.

## **2. INCIDENTAL TAKE STATEMENT**

Section 4(d) and Section 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering (64 FR 60727; November 8, 1999). Harass is defined as actions that create the likelihood of injuring listed species by significantly altering normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of threatened species. If necessary, it also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

## **2.1 Amount or Extent of the Take**

NMFS anticipates that the proposed actions covered by this Opinion are reasonably certain to result in incidental take of juvenile MCR steelhead. Some minimal level of incidental take is expected in the form of harassment to juvenile MCR steelhead during construction of the bottomless arches. The temporary increase instream turbidity associated with this work could result in temporarily-reduced feeding efficiency for juvenile MCR steelhead downstream of the project area. Effects from turbidity are expected to be of short duration, because turbidity levels will quickly return to preconstruction levels once instream work is completed. Additionally, some minimal level of incidental take is expected in the form of harassment to juvenile MCR steelhead as they are chased away from the project area by UNF fish biologists. Because of the inherent biological characteristics of aquatic species such as MCR steelhead, the likelihood of discovering take attributable to this action is very limited.

Effects of actions such as those addressed in this Opinion are largely unquantifiable in the short term, and may not be measurable as long-term effects on the species' habitat or population levels. Therefore, although NMFS expects some incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take of listed fish at any life stage associated with the proposed construction activities.

## **2.2 Effect of Take**

In this Opinion, NMFS has determined that the level of anticipated take is not likely to result in jeopardy to MCR steelhead or to destroy or adversely modify designated critical habitat when the reasonable and prudent measures are implemented.

## **2.3 Reasonable and Prudent Measures**

NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of MCR steelhead.

1. Minimize the likelihood of incidental take from activities involving temporary access roads, use of heavy equipment, earthwork, site restoration, or that may otherwise involve in-water work or affect fish passage by avoiding or minimizing disturbance to riparian and aquatic systems.
2. Ensure that project design measures are effective in minimizing incidental take by monitoring results of permitted activities.

## 2.4 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the UNF must comply with the following terms and conditions, which carry out the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (construction), the UNF shall ensure that:
  - a. Minimum area. Construction impacts will be confined to the minimum area necessary to complete the project. In particular, disturbance to riparian vegetation will be minimized.
  - b. In-water work. All work within the active channel that could contribute sediment or toxicants downstream will be completed within the ODFW approved in-water work period for Desolation Creek – July 15 through August 15.
  - c. Work period extensions. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark, must be approved by biologists from NMFS.
  - d. Fish passage. The duration of blockage to fish passage at the construction site will be the minimized to the time required to complete construction activities. All culvert and road designs must comply with ODFW guidelines and criteria for stream-road crossings<sup>1</sup> with appropriate grade controls to prevent culvert failure due to changes in stream elevation. Channel modifications which could adversely affect fish passage, such as by increasing water velocities, are not authorized by this Opinion.
  - e. Pollution and erosion control plan. A Pollution and Erosion Control Plan (PECP) will be developed for each authorized project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations.
    - i. A description of methods that will be used to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.
    - ii. A description of methods that will be used to confine, remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.
    - iii. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring protocols.
    - iv. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.

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<sup>1</sup> Appendix A, Oregon Department of Fish and Wildlife Guidelines and Criteria for Stream-Road Crossings, in: G.E. Robison, A. Mirati, and M. Allen, *Oregon Road/Stream Crossing Restoration Guide: Spring 1999* (rules, regulations and guidelines for fish passage through road/stream crossings under the Oregon Plan) (<http://www.nwr.noaa.gov/1salmon/salmesa/4ddocs/orfishps.htm>).



- v. Measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.
- f. Temporary access roads. Temporary access roads are designed as follows:
  - i. Existing roadways or travel paths will be used whenever reasonable.
  - ii. Where stream crossings are essential, a survey must determine and map any potential spawning habitat within 1,000 feet upstream and downstream.
  - iii. No stream crossings will occur at known or suspected spawning areas or within 300 feet upstream of such areas where impacts to spawning areas may occur.
  - iv. Where stream crossings are essential, the crossing design will accommodate reasonably foreseeable risks (e.g., flooding and associated bedload and debris) to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.
  - v. Vehicles and machinery must cross riparian areas and streams at right angles to main the main channel wherever reasonable.
  - vi. Temporary roads within 150 feet of streams will avoid, minimize and mitigate soil disturbance and compaction by clearing vegetation to ground level and placing clean gravel over geotextile fabric.
  - vii. The number of stream crossings is minimized.
- g. Cessation of work. All project operations, except efforts to minimize storm or high flow erosion, will cease under high flow conditions that may result in inundation of the project area.
- h. Pre-construction activities. Before significant alteration of the action area, the following actions will be accomplished.
  - i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
  - ii. The following erosion control materials are onsite.
    - (1) A supply of erosion control materials (e.g., silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales (weed free) will be used when available to prevent introduction of weeds.
    - (2) An oil absorbing, floating boom is available on-site during all phases of construction whenever surface water is present.
  - iii. All temporary erosion controls (e.g., straw bales, silt fences) are in place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in place at all times during the contract, and will remain and be maintained until permanent erosion control measures are effective.
- i. Heavy Equipment. Heavy equipment use will be restricted as follows.
  - i. When heavy equipment is required, the UNF will use equipment having the least impact (e.g., minimally sized, rubber tired).
  - ii. Excavators will have a properly guarded belly pan for pioneering type of work in rough terrain.

- iii. Heavy equipment will be fueled, maintained and stored as follows.
  - (1) All equipment that is used for instream work will be cleaned before operations below the bankfull elevation. External oil and grease will be removed, along with dirt and mud. No untreated wash and rinse water will be discharged into streams and rivers without adequate treatment.
  - (2) Place vehicle staging, maintenance, refueling, and fuel storage areas a minimum of 150 feet horizontal distance from any stream.
  - (3) All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.
  - (4) When not in use, vehicles will be stored in the vehicle staging area.
- j. Site preparation. Site preparation is completed in the following manner, including removal of stream materials, topsoil, surface vegetation and major root systems.
  - i. Any instream large wood or riparian vegetation moved or altered during construction will stay on the site or be replaced with a functional equivalent.
  - ii. Tree removal will be mitigated for onsite by a 2:1 replanting ratio.
  - iii. Whenever the project area is to be revegetated or restored, native channel material, topsoil and native vegetation removed for the project should be stockpiled for redistribution on the project area.
- k. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, is completed in the following manner:
  - i. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained from outside the riparian area.
  - ii. Material removed during excavation will only be placed in locations where it cannot enter streams or other water bodies.
  - iii. All exposed or disturbed areas will be stabilized to prevent erosion.
    - (1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,<sup>2</sup> mulching, and placement of erosion control blankets and mats, if applicable, as quickly as reasonable after exposure, but within seven days of exposure.
    - (2) All other areas will be stabilized as quickly as reasonable, but within 14 days of exposure.
    - (3) Seeding outside the growing season will not be considered adequate, nor permanent stabilization.
  - iv. All erosion control devices will be inspected during construction to ensure that they are working adequately.
    - (1) Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, monthly on inactive sites.

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<sup>2</sup> By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

- (2) If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, during working and off-hours, to make repairs, install replacements, or install additional controls as necessary.
  - (3) Erosion control measures will be judged ineffective when turbidity plumes are evident in waters occupied by listed salmonids during any part of the year.
- v. If soil erosion and sediment resulting from construction activities are not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.
- vi. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 5 inches (12 cm). Catch basins will be maintained so that no more than 6 inches (15 cm) of sediment depth accumulates within traps or sumps.
- vii. Sediment-laden water created by construction activity will be filtered before it leaves the right-of-way or enters a stream or other water body. Silt fences or other detention methods will be installed as close as reasonable to culvert outlets to reduce the sediment entering aquatic systems.
- 1. Site restoration. Site restoration and cleanup, including protection of bare earth by seeding, planting, mulching and fertilizing, is done in the following manner.
  - i. All damaged areas will be restored to pre-work conditions including restoration of original streambank lines, and contours.
  - ii. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation before October 1. On cut slopes steeper than 1:2, a tackified seed mulch will be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydro-mulch will be applied at 1.5 times the normal rate.
  - iii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project occurs, and will comprise a diverse assemblage of woody and herbaceous species.
  - iv. Plantings will be arranged randomly within the revegetation area.
  - v. All plantings will be completed before April 15, 2003.
  - vi. No herbicide application will occur within 300 feet of any stream channel as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.
  - vii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.
  - viii. Fencing will be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
  - ix. Plantings will achieve an 80 percent survival success after three years.
    - (1) If success standard has not been achieved after three years, the UNF will develop an alternative plan that addresses temporal loss of function.

- (2) Plant establishment monitoring will continue by the UNF until site restoration success has been achieved.
  - m. UNF Personnel. UNF personnel will be on-site for all construction and monitoring activities to ensure that these terms and conditions are met.
2. To implement Reasonable and Prudent Measure #2 (monitoring and reporting), the UNF shall submit a report to NMFS within one year of completing the project. This report will consist of the following information:
- a. Project identification.
    - i. Permit number,
    - ii. Contractor name,
    - iii. Project name,
    - iv. Project location by 5<sup>th</sup> field hydrological unit code (HUC) and latilong;
    - v. Starting and ending dates for work completed,
    - vi. FS contact person, and
    - vii. Description of how conservation measures were implemented and a measurement of their success.
  - b. Isolation of in-water work area. All projects involving isolation of in-water work areas must include a report of any seine and release activity including:
    - i. Name and address of the supervisory fish biologist;
    - ii. Methods used to isolate the work area and minimize disturbances to ESA-listed species;
    - iii. Stream conditions before and following placement and removal of barriers;
    - iv. Means of fish removal;
    - v. Number of fish removed by species;
    - vi. Location and condition of all fish released; and
    - vii. Any incidence of observed injury or mortality.
  - c. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
  - d. Site restoration. Documentation of the following conditions:
    - i. Finished grade slopes and elevations.
    - ii. Log and rock structure elevations, orientation, and anchoring, if any.
    - iii. Planting composition and density.
    - iv. A plan to inspect and, if necessary, replace failed plantings and structures for five years.
    - v. A narrative assessment of the project's effects on natural stream function.
  - e. Photographic documentation of environmental conditions at the project sites before, during and after project completion.
    - i. Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.

- ii. Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
- iii. Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.
- f. The annual report will be submitted on December 1, 2002 to:

National Marine Fisheries Service  
Oregon Habitat Branch, Habitat Division  
Attn: OSB2001-0280  
525 NE Oregon Street, Suite 500  
Portland, OR 97232

- g. NOTICE. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; phone: 360/418-4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. Besides the care of sick or injured endangered and threatened species, or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence with the specimen is not unnecessarily disturbed.

### **3. MAGNUSON-STEVENSON ACT**

#### **3.1 Background**

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

#### **3.2 Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species' full life cycle (50 CFR 600.110).

Section 305(b) of the MSA [6 USC 1855(b)] requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or State Activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reason for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

### **3.3 Identification of EFH**

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

### **3.4 Proposed Action**

The proposed action is detailed above in Section 1.2 of the ESA portion of this Opinion. The action area includes a section of the North and South Fork of Desolation Creek where the UNF proposed the Road 45 Bottomless Arches Project. This area has been designated as EFH for various life stages of chinook salmon.

### **3.5 Effects of Proposed Action**

As described in detail in the ESA portion of this consultation, the proposed activities may result in detrimental, short-term, adverse effects to several habitat parameters.

### **3.6 Conclusion**

NMFS believes that the proposed action may adversely affect EFH of chinook salmon.

### **3.7 EFH Conservation Recommendations**

Pursuant to Section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. In addition to conservation measures proposed for the project by the FS, all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Section 2.4 of the ESA portion of this Opinion are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

### **3.8 Statutory Response Requirement**

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the FS to provide a written response to NMFS' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. If the response is inconsistent with NMFS' conservation recommendations, the reasons for not implementing the FS shall explain its reasons for not following the recommendations.

### **3.9 Supplemental Consultation**

The FS must reinitiate EFH consultation with NMFS if either action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

#### 4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

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